

In the Claims:

- 1 Please cancel, without prejudice, claims 2, 6, 7, 15, 19 and 20.
- 2 Please amend the remaining claims as follows:
 - 3 1. (currently amended) A disk drive comprising:
 - 4 (a) a disk comprising a plurality of tracks, each track comprising a plurality of data
 - 5 sectors;
 - 6 (b) a head actuated radially over the disk, the head for generating a read signal while
 - 7 reading data from at least one of the data sectors;
 - 8 (c) a sampling device for sampling the read signal to generate read signal sample values;
 - 9 (d) a sequence detector for detecting an estimated data sequence from the read signal
 - 10 sample values;
 - 11 ~~(e)~~(e) a buffer for buffering read data associated with the read signal;
 - 12 ~~(d)~~(f) a disk controller for processing a read command received from a host computer by:
 - 13 positioning the head over a selected data sector to generate a first read signal;
 - 14 sampling the first read signal to generate a first sequence of read signal sample
 - 15 values;
 - 16 detecting a first estimated data sequence using the sequence detector from the first
 - 17 sequence of read signal sample values;
 - 18 storing in the buffer ~~first read data associated with the first read signal~~ the first
 - 19 estimated data sequence;
 - 20 if a read error occurs:
 - 21 repositioning the head over the selected data sector to generate a second read
 - 22 signal;
 - 23 sampling the second read signal to generate a second sequence of read signal
 - 24 sample values;
 - 25 detecting a second estimated data sequence using the sequence detector from the
 - 26 second sequence of read signal sample values;

27 averaging ~~second read data associated with the second read signal~~ the second
28 estimated data sequence with the first ~~read data~~ estimated data sequence stored
29 in the buffer to generate an averaged estimated data sequence ~~read data~~;
30 storing the averaged ~~read data~~ estimated data sequence in the buffer; and
31 processing the averaged ~~read data~~ estimated data sequence stored in the buffer to
32 recover the selected data sector.

1 2. (canceled)

1 3. (currently amended) The disk drive as recited in ~~claim 2~~ claim 1, wherein the disk
2 controller implements an error correction code (ECC) for detecting and correcting errors
3 in the averaged ~~binary bits~~ estimated data sequence.

1 4. (currently amended) The disk drive as recited in claim 3, wherein:
2 (a) the averaged estimated data sequence comprises averaged binary bits;
3 ~~(a)~~ (b) the averaged binary bits are grouped into ECC symbols;
4 ~~(b)~~ (c) a reliability metric is generated for each ECC symbol in response to a reliability
5 derived from averaging the binary bits; and
6 ~~(c)~~ (d) the disk controller processes the reliability metrics to augment the ECC.

1 5. (original) The disk drive as recited in claim 4, wherein:
2 (a) at least one erasure pointer is generated from the reliability metrics; and
3 (b) the disk controller processes the erasure pointer to increase the number of correctable
4 ECC symbols.

1 6. (canceled)

1 7. (canceled)

1 8. (currently amended) The disk drive as recited in ~~claim 7~~claim 1, ~~wherein the read channel~~
2 ~~comprises~~further comprising:
3 (a)an equalizer filter for filtering the ~~averaged~~read signal sample values to ~~generated~~
4 generate equalized read signal sample values, wherein the sequence detector detects the
5 estimated data sequences from the equalized sample values; ~~and~~
6 (b)~~a sequence detector for detecting the estimated data sequence from the equalized read~~
7 ~~signal sample values.~~

1 9. (original) The disk drive as recited in claim 1, wherein the disk controller adjusts at least
2 one parameter of the disk drive prior to rereading the selected data sector.

1 10. (original) The disk drive as recited in claim 9, wherein the disk controller adjusts a read
2 channel parameter.

1 11. (original) The disk drive as recited in claim 9, wherein the disk controller adjusts a servo
2 control parameter.

1 12. (original) The disk drive as recited in claim 11, wherein the disk controller adjusts a
2 tracking offset to at least two different settings wherein for each tracking offset setting
3 the disk controller performs at least one reread of the selected data sector to generate the
4 averaged read data.

1 13. (original) The disk drive as recited in claim 12, wherein for each tracking offset setting
2 the disk controller performs multiple rereads of the selected data sector to generate the
3 averaged read data.

14. (currently amended) A method of recovering an errant data sector in a disk drive, the disk drive comprising a disk having a plurality of tracks, each track comprising a plurality of data sectors, a head actuated radially over the disk, the head for generating a read signal while reading data from at least one of the data sectors, a sampling device for sampling the read signal to generate read signal sample values, a sequence detector for detecting an estimated data sequence from the read signal sample values, and a buffer for buffering ~~read data associated with the read signal,~~ the method comprising the steps of:

(a) receiving a read command from a host computer;

(b) positioning the head over a selected data sector to generate a first read signal;

(c) sampling the first read signal to generate a first sequence of read signal sample values;

(d) detecting a first estimated data sequence using the sequence detector from the first sequence of read signal sample values;

~~(e)~~(e) storing in the buffer the first estimated data sequence ~~first read data associated with the first read signal;~~

if a read error occurs:

~~(d)~~(f) repositioning the head over the selected data sector to generate a second read signal;

(g) sampling the second read signal to generate a second sequence of read signal sample values;

(h) detecting a second estimated data sequence using the sequence detector from the second sequence of read signal sample values;

~~(e)~~(i) averaging the second estimated data sequence ~~second read data associated with the second read signal with the first read data~~ estimated data sequence stored in the buffer to generate an averaged read data ~~estimated data sequence;~~

~~(f)~~(j) storing the averaged read data ~~estimated data sequence~~ in the buffer; and

27 ~~(g)~~(k) processing the averaged ~~read data~~estimated data sequence stored in the buffer
28 to recover the selected data sector.

1 15. (canceled)

1 16. (currently amended) The method as recited in ~~claim 15~~claim 14, further
2 ~~comprising~~wherein the step of processing the averaged estimated data sequence
3 comprises the step of using an error correction code (ECC) for detecting and correcting
4 errors in the averaged ~~binary bits~~estimated data sequence.

1 17. (currently amended) The method as recited in claim 16, wherein the averaged estimated
2 data sequence comprises averaged binary bits, and the step of using the ECC for
3 detecting and correcting errors further comprising the steps of:
4 (a) grouping the averaged binary bits into ECC symbols;
5 (b) generating a reliability metric for each ECC symbol in response to a reliability
6 derived from averaging the binary bits; and
7 (c) processing the reliability metrics to detect and correct errors in the averaged
8 binary data.

1 18. (original) The method as recited in claim 17, further comprising the steps of:
2 (a) generating at least one erasure from the reliability metrics; and
3 (b) processing the erasure pointer to increase the number of correctable ECC
4 symbols.

1 19. (canceled)

1 20. (canceled)

- 1 21. (currently amended) The method as recited in ~~claim 20~~claim 14, further comprising the
2 steps of:
- 3 (a)filtering the ~~averaged~~read signal sample values to generated equalized read signal
4 sample values, wherein the sequence detector detects the estimated data sequences
5 from the equalized sample values; and
6 (b)~~detecting the estimated data sequence from the equalized read signal sample~~
7 ~~values.~~
- 1 22. (original) The method as recited in claim 14, further comprising the step of adjusting at
2 least one parameter of the disk drive prior to rereading the selected data sector.
- 1 23. (original) The method as recited in claim 22, wherein the step of adjusting a parameter of
2 the disk drive comprises the step of adjusting a read channel parameter.
- 1 24. (original) The method as recited in claim 22, wherein the step of adjusting a parameter of
2 the disk drive comprises the step of adjusting a servo control parameter.
- 1 25. (original) The method as recited in claim 24, further comprising the steps of adjusting a
2 tracking offset to at least two different settings wherein for each tracking offset setting
3 rereading the selected data sector at least once to generate the averaged read data.
- 1 26. (original) The method as recited in claim 25, wherein for each tracking offset setting
2 rereading the selected data sector multiple times to generate the averaged read data.